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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,610	08/11/2005	Franz Laermer	10191/4116	9981

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KENYON & KENYON LLP  
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EXAMINER

HO, HOANG QUAN TRAN

ART UNIT	PAPER NUMBER
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2818

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06/15/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/524,610		LAERMER ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Hoang-Quan Ho		2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 March 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/5/07</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's amendment dated March 26, 2007 in which claims 16 and 23 were amended, claims 1 – 15 and 29 – 32 were cancelled, no claim was withdrawn, and no claim was added has been entered of record. Currently, claims 16 – 28 are pending in light of the amendment.

### ***Response to Arguments***

Applicant's arguments filed March 26, 2007 have been fully considered.

Applicant's remarks, see pg. 4, with respect to the objection to claim 23 have been fully considered and persuasive in light of amendment. Therefore, the objection has been withdrawn.

Applicant's arguments, see pgs. 4 – 5, with respect to the rejection of claims 16 – 28 under 35 U.S.C. § 102(b) and 103(a) have been fully considered and are persuasive in light of amendment. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made below.

### ***Information Disclosure Statement***

The information disclosure statement filed February 5, 2007 fails to comply with 37 CFR 1.97(c) because it lacks the fee set forth in 37 CFR 1.17(p). It is best understood by the Examiner that Applicant has been charged with the fee set forth in 37

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CFR 1.17(p) on February 22, 2007. Therefore, it is best understood by the Examiner that compliance has been met.

The information disclosure statement filed February 5, 2007 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the IDS submitted is recognized by the Examiner that the contents are related to a different invention, e.g. heart valves. The Examiner has major doubts heart valves are connected to semiconductor, etching trenches. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 16 is rejected under 35 U.S.C. 102(e) as being anticipated by Patel et al. (U.S. Patent App. Pub. No. 2005/0074919 A1), hereinafter as Patel.

Regarding claim 16, figs. 1A – 1E of Patel teaches a layer system, comprising:  
an etching layer (ref. nos. 14 and 16B), whereby the etching layer is a silicon layer (par. 0020); and

a passivation layer (ref. nos. 18 and 20) applied at least regionally to a surface of the silicon layer (as seen in figs.), wherein:

the passivation layer includes a first, at least largely, inorganic partial layer (ref. no. 18) and a second partial layer (ref. no. 20), and the second partial layer is made of an organic compound (par. 0021 – 0022).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 17 – 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel, and further in view of Nishimura et al. (U.S. Patent No. 5,604,380), hereinafter as Nishimura.

It is to be noted that for a concise rejection in regards to claims 17 – 28 below, the motivations are given of the following, thereby reducing repeats and cluttering for claims 17 – 28:

Patel does not explicitly teach claims 17 – 28. However, Nishimura teaches all the claimed limitations of claims 17 – 28 as rejected below. Nishimura teaches a passivation layer, including a first inorganic partial layer (ref. nos. 4 and/or 6) and a second partial layer, made of an organic compound (ref. no. 5). Patel teaches the inorganic partial layer (ref. no. 18) and the organic partial layer (ref. no. 20). Therefore, the teachings of Nishimura are substituted into Patel's device, because they share common grounds of materials – inorganic and organic layers.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the device of Patel with the more specific details of the invention of Nishimura, in order to provide a more detailed construction of the device. Also, Nishimura's teachings combined with Patel's invention would allow improved long term reliability of electric characteristics and simplify device processing (abstract).

It is proper to combine the teachings of Patel and Nishimura by way of the following reason: Patel teaches a MEMS device on substrates. Figs. 1A – 1E demonstrates at least a construction of insulators on a substrate. Nishimura teaches construction of a multilayer structure, more particularly an interlayer insulating film (col. 1, lines 6 – 13) on a substrate (as seen in Nishimura's figs., e.g. fig. 2d). Therefore, the two prior arts are combinable due to related art and field of invention.

Regarding claim 17, Patel teaches the layer system as recited in claim 16, but Nishimura teaches wherein the organic compound contains a halogen (col. 13, lines 46 – 50; examples and tables in the disclosure).

Regarding claim 18, Patel teaches the layer system as recited in claim 16, but Nishimura teaches wherein: the organic compound includes a silane corresponding to one of an organic fluorine silane, an organic fluorochlorine silane, and a siloxane (col. 10, lines 55 – 67).

Regarding claim 19, Patel teaches the layer system as recited in claim 16, but Nishimura teaches wherein the organic compound has the general formula  $R_a-R_b-Si(X)_3-n-(R_c)_n$ ,  $R_a$  being a perfluorinated polyether or a perfluorinated alkyl group having 1 to 16 carbon atoms, especially 6 to 12 carbon atoms,  $R_b$  and  $R_c$  being an alkyl group, and  $X$  being a halogen, an acetoxy group or an alkoxyl group, and  $n$  having a value of 0 to 2

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(col. 22, lines 39 – 42).

Regarding claim 20, Patel teaches the layer system as recited in claim 16, but Nishimura teaches wherein the first partial layer is at least largely composed of an oxide layer including a silicon oxide (ref. no. 4).

Regarding claim 21, Patel teaches the layer system as recited in claim 16, but Patel and Nishimura does not explicitly teaches wherein the first partial layer has a thickness of 1 nm to 100 nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the device of Patel and Nishimura with the first partial layer thickness, in order to achieve desirable thickness.

Regarding claim 22, Patel teaches the layer system as recited in claim 16, but Patel and Nishimura does not explicitly teaches wherein the first partial layer has a thickness of 1 nm to 20 nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the device of Patel and Nishimura with the first partial layer thickness, in order to achieve desirable thickness.

Regarding claim 23, Patel teaches the layer system as recited in claim 16, but Nishimura teaches wherein the first partial layer is directly applied one of to the silicon layer and on a layer of silicon oxide situated on the silicon layer (as seen in fig. 2d).



Regarding claim 24, Patel teaches the layer system as recited in claim 16, but Nishimura teaches wherein the second partial layer is a self-assembled monolayer (col. 22, lines 39 – 42).

Regarding claim 25, Patel teaches the layer system as recited in claim 16, but Patel and Nishimura does not explicitly teaches wherein the second partial layer has a thickness of 0.5 nm to 30 nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the device of Patel and Nishimura with the second partial layer thickness, in order to achieve desirable thickness.

Regarding claim 26, Patel teaches the layer system as recited in claim 16, but Patel and Nishimura does not explicitly teaches wherein the second partial layer has a thickness of 5 nm to 20 nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the device of Patel and Nishimura with the second partial layer thickness, in order to achieve desirable thickness.

Regarding claims 21 – 22 and 25 – 26, there is no evidence indicating the thickness of first and second partial layers are critical and it has been held that it is not inventive to discover the optimum or workable range of a result-effective variable within given prior art conditions by routine experimentation. See MPEP § 2144.05.

Note that the specification is believed not containing any disclosure of either the critical nature of the claimed dimensions of any unexpected results arising there from.

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Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Regarding claim 27, Patel teaches the layer system as recited in claim 16, but Nishimura teaches wherein the passivation layer protects the silicon layer with respect to an etch attack by a gaseous halogen fluoride including one of  $\text{ClF}_3$  and  $\text{BrF}_3$  (obvious due to composition materials cited, at least in claims 17 – 19).

Regarding claim 28, Patel teaches the layer system as recited in claim 16, but Nishimura teaches wherein the passivation layer is free of micro-scale or nano-scale channels which are permeable for a gas including one of  $\text{ClF}_3$ ,  $\text{BrF}_3$  and a vapor (obvious due to composition materials cited, at least in claims 17 – 19).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

This action is a **final rejection** and is intended to close the prosecution of this application. Applicant's reply under 37 CFR 1.113 to this action is limited either to an appeal to the Board of Patent Appeals and Interferences or to an amendment complying with the requirements set forth below.

If applicant should desire to appeal any rejection made by the examiner, a Notice of Appeal must be filed within the period for reply identifying the rejected claim or claims appealed. The Notice of Appeal must be accompanied by the required appeal fee.

If applicant should desire to file an amendment, entry of a proposed amendment after final rejection cannot be made as a matter of right unless it merely cancels claims or complies with a formal requirement made earlier. Amendments touching the merits of the application which otherwise might not be proper may be admitted upon a showing a good and sufficient reasons why they are necessary and why they were not presented earlier.

A reply under 37 CFR 1.113 to a final rejection must include the appeal from, or cancellation of, each rejected claim. The filing of an amendment after final rejection, whether or not it is entered, does not stop the running of the statutory period for reply to the final rejection unless the examiner holds the claims to be in condition for allowance. Accordingly, if a Notice of Appeal has not been filed properly within the period for reply, or any extension of this period obtained under either 37 CFR 1.136(a) or (b); the application will become abandoned.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang-Quan Ho whose telephone number is (571) 272-8711. The examiner can normally be reached on Monday - Friday, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/HQH/  
Hoang-Quan Ho  
Junior Examiner  
June 2, 2007



Andy Huyen  
Primary Examiner